

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 17 November 2021**

Case Number: T 0926/17 - 3.2.04

Application Number: 11708578.7

Publication Number: 2531038

IPC: A22C25/16, A22C17/00, A22C21/00

Language of the proceedings: EN

Title of invention:

FOOD PROCESSING APPARATUS FOR DETECTING AND CUTTING TOUGH
TISSUES FROM FOOD ITEMS

Patent Proprietor:

Valka Ehf

Opponent:

Nordischer Maschinenbau
Rud. Baader GmbH + Co. KG

Headword:

Relevant legal provisions:

EPC R. 80, 116(2)
EPC Art. 83, 84, 54(2), 56

Keyword:

Amendment occasioned by ground for opposition - discretion of
opposition division

Sufficiency of disclosure - (yes)

Claims - clarity (yes)

Novelty - (yes)

Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0926/17 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 17 November 2021

Appellant:

(Opponent)

Nordischer Maschinenbau
Rud. Baader GmbH + Co. KG
Geniner Strasse 249
23560 Lübeck (DE)

Representative:

Stork Bamberger Patentanwälte PartmbB
Meiendorfer Strasse 89
22145 Hamburg (DE)

Respondent:

(Patent Proprietor)

Valka Ehf
Akralind 1
201 Kópavogur (IS)

Representative:

Vossius & Partner
Patentanwälte Rechtsanwälte mbB
Siebertstrasse 3
81675 München (DE)

Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
13 February 2017 concerning maintenance of the
European Patent No. 2531038 in amended form.**

Composition of the Board:

Chairman

A. de Vries

Members:

G. Martin Gonzalez

C. Heath

Summary of Facts and Submissions

I. The appeal was filed by the appellant-opponent against the interlocutory decision of the opposition division finding that on the basis of the then auxiliary request 1 the patent in suit met the requirements of the EPC.

II. The opposition division decided inter-alia that the auxiliary request 1 before it (corresponding to the main request in appeal) was admissible, that the invention was sufficiently disclosed, the claimed subject-matter was clear, the amended claims did not introduce added subject-matter and were new and involved an inventive step in the light of the cited prior art.

III. In preparation for oral proceedings the board issued a communication, dated 10 January 2020, setting out its provisional opinion on the relevant issues.

Oral proceedings before the board were held by videoconference on 17 November 2021.

IV. The appellant-opponent requests that the decision under appeal be set aside and that the patent be revoked.

The respondent-proprietor requests that the appeal be dismissed, or that the decision under appeal be set aside and that the patent be upheld according to the first auxiliary request filed with letter dated 12 March 2020.

V. The independent claims of the main request read as follows:

"1. A food processing apparatus (1000) adapted for detecting and cutting tough tissues such as bones, cartilage, and fat from food item pieces (101, 102) such as fish or meat fillets or poultry items, comprising:

 a first conveyor belt (2) that is solid and suitably thin, for X-ray imaging, having an in-feed end and an out-feed end,

 at least one x-ray machine (1) associated to said first solid conveyor belt (2) for imaging incoming food items (101) conveyed on the first solid conveyor belt and based on the imaging generating x-ray image data indicating the location of the tough tissues in said food item pieces,

 a second porous conveyor belt (6), for water jet cutting, which in-feed end is adapted to be placed adjacent to the out-feed end of said first solid conveyor belt (2) for receiving said food items pieces from the out-feed end of the first solid conveyor belt,

 a vision system (3) for supplying second image data of said food item pieces (101, 102) subsequent to the imaging by said at least one x-ray machine (1), the second image data including position related data indicating the position of the food item pieces on said second porous conveyor belt (6) prior to said cutting, said second porous conveyor belt (6) being adapted to convey the food item pieces during said imaging and while cutting said tough tissues from said food item pieces, and

 a tracking mechanism for tracking the position of the food item pieces at all times,

 a mapping mechanism (1001) comprising:

 a processor (1002) for utilizing the tracking position data for the food items subsequent to said x-ray imaging data so as to determine an estimated

position of the food item pieces on said second porous conveyor belt (6), where subsequent to obtaining the second image data, comparing said estimated coordinate position of the food item pieces to the actual position on the second porous conveyor belt 30 based said second image data, where in case of non-match between said estimated coordinate position and said actual position, a processor (1002) for mapping the x-ray image data onto the second image data such that the position of the tough tissues matches to said second image data, and a control unit (1003) operable to operate a cutting means (4,5,7) for cutting said food items pieces by utilizing said mapped x-ray image data as operation data."

"14. A method of detecting and cutting tough tissues such as bones, cartilage, and fat from food item pieces such as fish or meat fillets or poultry items, comprising:

imaging incoming food item pieces using at least one x-ray machine while conveying the food item pieces on a first conveyor belt that is solid and suitably thin for the imaging using the at least one x-ray machine and based on the imaging generating x-ray image data indicating the location of the tough tissues in said food item pieces, conveying, subsequent to said x-ray imaging, said food item pieces on a second porous conveyor belt (6), where during the conveying, supplying second image data of said food item pieces (101) subsequent to the imaging by said at least one x-ray machine, cutting said tough tissues from said food item pieces subsequent to supplying the second image data, the

second image data including position related data indicating the position of the food item pieces on said second porous conveyor belt (6), and tracking the position of the food item pieces at all times, utilizing the tracking position data for the food items subsequent to said x-ray imaging data so as to determine an estimated position of the food item pieces on said second porous conveyor belt (6), where subsequent to obtaining the second image data, comparing said estimated coordinate position of the food item pieces to the actual position on the second porous conveyor belt based said second image data, where in case of non-match between said estimated coordinate position and said actual position, mapping the x-ray image data onto the second image data such that the position of the tough tissues matches to said second image data, and cutting said food items pieces by utilizing said mapped x-ray image data as operation data."

"15. A computer program comprising instructions for carrying out all the steps of the method claim 14, when said computer program is executed on a computer system."

VI. In the present decision, reference is made to the following documents:

- (D1) US 5,162,016
- (D2) US 2005/0032471 A1
- (D17) GB 2 364 894 A

VII. The appellant-opponent's arguments can be summarised as follows:

The main request (patent as upheld) was wrongly admitted by the opposition division. The invention according to the upheld claims is insufficiently disclosed. Moreover its claimed subject-matter is unclear. The amended claims contain added subject-matter, they are not new and lack an inventive step in the light of D1, D2 and D17.

VIII. The respondent-proprietor's arguments can be summarised as follows:

The opposition division correctly exercised its discretion to admit the then auxiliary request 1 (main request before the board). The invention as claimed is sufficiently disclosed. The maintained claims are clear, do not add subject-matter, are new and involve an inventive step over the cited prior art.

Reasons for the Decision

1. The appeal is admissible.
2. Background

The invention is concerned with a food processing apparatus and method for detecting and cutting tough tissues such as bones, cartilage and fat from food item pieces, see patent specification paragraph [0001]. The machine has a first solid conveyor belt for obtaining an x-ray image of the food items and a second porous conveyor belt for water jet cutting, the second conveyor belt being associated with a vision system. The x-ray image contains data indicating the location of the tough tissues in the food item. The first solid conveyor belt is more suitable for x-ray imaging while the porous conveyor belt is better suited for use with

high pressure water jet cutting. The food item may experience a shift with respect to its expected position during the transition of the food item from the x-ray conveyor to the water jet cutting conveyor. For precise cutting of the tough tissues within the food items, even in the event of food item shift during conveyance, a processor for mapping the x-ray image data onto the second image data of the vision system such that the position of the tough tissues matches the second image data is provided. The cutting process is then carried out using the mapped x-ray image data as operation data, see specification paragraphs [0013]-[0015].

3. Admissibility of the main request (auxiliary request 1 before the opposition division).

In their written submissions the appellant-opponent objects to the admissibility of the upheld version (auxiliary request 1 before the opposition division) under Rule 80 EPC as late filed.

The board set out its preliminary opinion in its written communication as follows:

"The Board notes that Rule 80 EPC does not specify the point in time up to which amendment is allowed. Rule 80 EPC creates the legal basis for amendments, and Rule 116(2) EPC governs the deadline for doing so, see Case Law of the Boards of Appeal, 9th edition 2019 (CLBA), IV.C.5.1.3. 5th paragraph.

The auxiliary request 1 before the Opposition Division (present main request) was filed before the time limit established by the summons of 9 March 2016 under Rule 116 EPC. [It] cannot thus be considered late filed

under this provision. The relevant guidelines are set out in the then valid version GL (2016), E-V, 2.1 (E-V, 2.2 (b) does not apply as there was no negative opinion in the annex to the summons). It can be inferred that in the case amendments filed before the Rule deadline 116 should be admitted if they address a ground of opposition, Rule 80 EPC, but (5th paragraph) e.g. based on material taken from the description, then the opponent should be given an opportunity to respond. It is not apparent to the Board that the Division deviated from these guidelines."

At the oral proceedings before the board the appellant-opponent acknowledged that the division had followed due process but, without substantiation, called into question that process. Otherwise they referred to their written submissions and refrained from further comment on the board's preliminary opinion. Absent any further submissions from the parties and without substantiation of their criticism of EPO procedure, the board sees no reason to address that criticism or to deviate from its provisional opinion. It therefore decides not to overturn the decision of the opposition division to admit the (now) main request.

4. Main request - Clarity and sufficiency of disclosure.
 - 4.1 The appellant-opponent contests the findings of the opposition division, see sections 3.1 and 4.2 of the impugned decision, that claims 1 and 14 are clear and sufficiently disclosed.
 - 4.2 The appellant objects to the features of *tracking* the position of the food item *at all times*, in particular how it can be realised in practice, and to the features *estimated coordinate position* and *actual position*. They

submit in particular that if an item is tracked at all times, its actual position is known. It is thus unclear what an "estimated coordinate position" can be in this context. The skilled person would thus be unable to carry out this unknown feature.

For the Board approaching the claims with a mind willing to understand and make technical sense of the claimed subject-matter the above terms are immediately clear, already from the claim itself. To a technical, open mind they are understood not in an absolutist, literal sense, but rather with the normal practical limitations of the real world in mind. Thus, tracking the position (i.e. following the course, see OED) at all times does not imply perfect, infinite knowledge of position or exclude error or inaccuracy. From the context of the claim it is easily understood that tracking gives an initial estimate of position that is subsequently verified with a more accurate measurement of actual position by other means (imaging), as is the case here. The description details that tracking is realized by encoders, see paragraph [0048] of the patent specification but that uncertainties arise from the transfer of the food item between conveyors, where items may shift. Following paragraph [0049] explains how this is corrected for by a "vision" or imaging system. This is simple and straightforward and behoves little explanation: it is not rocket science. The Board concludes that the above objections are clearly without merit and indeed appear far-fetched.

- 4.3 The Board finds the same for the appellant's objections that the terms "suitably thin for x-ray imaging" and "mapping" and the absence of a verb in the last claimed feature would result in a serious lack of clarity in the definition of the invention.

That the claim requires the conveyor belt to be suitably thin for x-ray imaging is at worst a stylistic error, informing the knowledgeable reader, an engineer in food processing and familiar with x-ray technology, of what they will already know, namely that x-ray imaging does not work well with belts that are not thin enough.

If there is any need for a definition (the Board believes there is not), mapping is the process of "assigning [things] in a mathematical or exact correspondence", such as mapping picture elements to video memory, see Webster-Merriam. In the claim the x-ray image data are so assigned to the second image data, as explained in greater detail in paragraph [0049] and depicted in figure 11.

Whether a verb is missing in the final feature of claim 1 is in this case merely a question of editorial rectitude, not of compliance with the EPC. It does not impair understanding of the claim as the appellant amply demonstrates in their arguments against novelty and inventive step. Indeed, none of their objections regarding sufficiency and clarity seems to have affected their ability to understand the claimed subject-matter and compare it to the cited prior art, which seems to further indicate that these objections are gratuitous and of no merit.

- 4.4 The board therefore concludes that the subject-matter of claims 1 and 14 is clear in the sense of Article 84 EPC and that the patent is sufficiently disclosed, Article 83 EPC.

5. Main request - Amendments

5.1 The opposition division rightly decided, see section 4.3 of the impugned decision, that the feature "suitably thin, for X-ray imaging" conveyor belt in claims 1 and 14 does not add new technical information beyond what is described e.g. on original page 4, lines 22-24: "For example when an x-ray system is used as tough tissue detection means a very thin solid belt conveyor may be most suitable as a first conveyor".

The original teaching is thus that the thickness of the belt, if used with an X-ray system, is determined by its suitability for that use, as is now claimed. Within that context suitability is linked to its use for x-ray imaging and there is no implication that the thinness of the belt makes it suitable for anything else.

Moreover, as stated above it specifies nothing that the skilled person does not already know, namely that a belt should be thin enough for x-ray imaging. This does not change because the original disclosure lifts out "very thin" belts as "most suitable". The corollary of that statement is that belts that are only normally suitable are not very thin.

Therefore claims 1 and 14 as amended according to the main request does not introduce added subject-matter, Article 123(2) EPC.

6. Main request - Novelty

In the board's opinion the opposition division was right to conclude, see section 4.4. of the impugned decision, that the subject-matter of claims 1 and 14 is new over D17, Article 54(2) EPC.

- 6.1 Indeed, document D17 does not describe mapping x-ray image data of a first imaging station onto a second vision system image data at a cutting station as is required by the contested claims.
- 6.2 As described in D17 a first scanner is placed immediately prior to a first cutting operation. The scanner is preferably an x-ray scanner and both operations are performed on the same conveyor belt (see page 4, line 31 - page 5, line 17 and page 12, lines 21-22). D17 further describes imaging stations associated to further subsequent cuts on the food item. If after the first cutting step the food item has not shifted, no further scanning or imaging is carried out and the original image data is used for the second cutting station - thus without mapping it onto a second image. If on the contrary after the first cutting step it is detected that the food item has shifted, it is fully scanned again, preferably using the same scanner system (see page 5, line 17-29 and page 15, lines 3-6), for the subsequent cutting step. The originally collected data from the first imaging station is discarded and not reused in D17. There is therefore no disclosure of mapping image data information of a first scanning onto image data of a second scanning.
- 6.3 While it is true that D17 elsewhere, see figure 12 and page 18, line 29, to page 19, line 34, describes a two-belt concept, this relates to an alternative embodiment that is the subject of a separate set of claims 15 to 28. In that alternative embodiment the second belt ("perf. intralox belt" in the figure), where cutting is performed, has no vision system. Without second image data, there can be no mapping of first image data onto second image data. As stated this two-belt concept relates to a different aspect of the invention of D17,

namely a configuration that is used for a thickness trimming operation as depicted in figure 12. The food item is held by a perforated overhead second conveyor using vacuum, so that it can be cut from below by a band knife or similar cutting along a straight line parallel to the overhead conveyor. This is the first cut to be effected on portions, which drop onto the "portioner *infeed* belt" (emphasis added) of figure 12. The Board infers that the apparatus in figure 12 is located at the feed or infeed side of that of figure 2 and serves to ensure that the portion lies flatly on the main belt for the subsequent precise cutting steps (figures 3 and 4) that produce exact portions. For this initial preparatory step there is no need for any scanning, let alone second scanning associated with the porous belt or mapping of image data that does not yet exist.

- 6.4 The subject-matter of claims 1 and 14 is thus new over D17.
- 7. Main request - Inventive step.
 - 7.1 The appellant-opponent contests the positive findings of inventive step of the opposition division, see section 5 of the written decision, starting from D1, D2 or D17.
 - 7.2 None of the above cited documents describe mapping x-ray image data of a first, imaging station to an image taken in a subsequent cutting station.
 - 7.2.1 Indeed, it follows from the above novelty discussion that D17 does not describe mapping of first image data onto a second image, but only to fully re-scan the food item if needed, and discard the first image data.

7.2.2 As regards document D2, this document describes in paragraph [0025] a two-belt set-up where a solid conveyor belt can be used for the scanning station 14 and is followed by a separate second conveyor for the cutting station 20. The second conveyor can be a porous belt conveyor ("a metallic belt of a grid or "open" construction") for stations 20 of the type using high-speed fluid jet cutting apparatuses. There is however no vision system associated to the second perforated belt of the cutting station 20, and thus no second image at all. Consequently, D2 does not disclose mapping of first image data onto second image data.

7.2.3 D1 is not directed to a food processing apparatus using conveyor belts, but rather to an apparatus for cutting carcasses that are rigidly secured to a mounting vehicle 16 so that the cutting forces do not move the carcass, see column 6, lines 12-16. The vehicle 16 moves (along a path 76) through an imaging station 20 where cameras 22 and 24, and x-ray imagers 30,32 scan the carcass to obtain cutting paths for segmenting the carcass, see the paragraph bridging columns 3 and 4. Subsequently, the vehicle moves to the cutting station 40 where the carcass is cut along the created cutting paths, column 4, lines 12 to 16.

D1 at column 10, lines 42-57, describes the transport of the carcass and mounting vehicle from the imaging station 20 to the cutting station 40 and their positioning within cutting station 40. Their final position, i.e. where they come to a stop within the cutting station in a correct cutting position, must be known by the system for starting the precision cutting operation along predetermined cutting paths. To this end "the detector 124 determines the proper position of

the carcass". The "detector 124 is most preferably a television camera .. positioned similarly to television camera 22" located at the first imaging station. As is evident from this formulation ("most preferably") the detector need not be a camera, and the comparison of images from cameras 22 and 124 described in the following lines 55 to 57 is given only for illustrative purposes. In the Board's understanding therefore the camera and comparison of image data serve no other purpose than detecting position, and other detecting arrangements are envisageable. This appears all the more so as D1 does not expect any shifting of position of the carcass with respect to the transport vehicle 16 during conveyance, since the carcasses are so rigidly secured to the mounting vehicle 16 that even cutting forces do not move the carcass, see column 6, lines 12-16. That is indeed the stated purpose of these vehicles. Thus, the only concern is the final position of the vehicle with carcass within the cutting station 40.

From the above it follows that there is no teaching or suggestion in D1 of mapping of image data, and certainly not x-ray data, from the first, imaging station onto the image data from the second, cutting station. This finding is regardless of whether D1 uses detection of the proper position to adjust the position of the vehicle and carcass or to calculate an offset for cutting paths created from the camera and x-ray data acquired in the imaging station 20, column 4, lines 1 to 6. This is left open in the passage in column 10.

- 7.3 The differentiating feature of mapping image data of a first, imaging station to an image taken in a subsequent cutting station in particular solves the

technical problem of improving the accuracy of the water-jet cutting.

Indeed, a solid conveyor is better suited for x-ray while a porous conveyor is better adapted to water jet cutting. By using two adjacent but different conveyor belts for x-ray imaging and cutting more accurate data and more accurate water jet cutting is achieved. However the food item may experience a shift with respect to its expected position during the transition between belts. Additionally mapping the initial x-ray cutting data onto the final position data captured after transition between belts corrects or reduces cutting inaccuracies that may be caused by shifting during food item transition between belts. The cutting process is then carried out using the mapped x-ray image data as operation data. The technical problem can thus be formulated as how to improve the accuracy of the water jet cutting operation, see specification paragraphs [0013]-[0015].

- 7.4 As discussed above, none of D1, D2 and D17 suggests the claimed feature of mapping image data of a first station to an image taken in a subsequent cutting station in particular to improve cutting accuracy. Consequently, a combination of any of these documents does not result in the claimed subject-matter.

This is so even considering that D17 addresses a similar problem of food item shift. In D17, however, shifting is caused by a previous cutting operation and is not due to conveyor belt transfer. In any case, D17 teaches a different solution, namely fully re-scanning and discarding the original x-ray data, see novelty section above. Therefore, the question whether or not it is within the normal skill of the skilled person to

abstract the teaching from D17 to address shift (and to apply to D1 or D2) is immaterial. This is so because the skilled person would further need to modify the approach of D17 so as to arrive at the claimed subject-matter. The Board is unconvinced that it is within routine skills of the skilled person to modify the approach of D17 to start mapping previous (x-ray) data into new image data instead of replacing data, as is taught in D17, with a completely new re-scan.

- 7.5 The board thus confirms the decision's finding that the subject-matter of claims 1 and 14 involves an inventive step in the light of documents D1, D2 and D17, Article 56 EPC.
8. Claim 15 is directed to a computer program comprising instructions for carrying out all the steps of the method claim 14. As such, the above positive conclusions in respect of sufficiency, clarity, added subject-matter, novelty and inventive step in respect of claim 14 also hold for claim 15 for similar reasons.
9. As all the objections raised by the appellant-opponent fail the board confirms the findings of the Opposition Division.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated